

U.S. Serial No. 10/757,546
Amendment
Response to 1-12-06 OA

Atty. Docket No. 740165-369

REMARKS

The objection to the drawings under 37 C.F.R. §1.83(a) has been obviated by deleting the references to an output shaft side pulley and clutch side pulley from claim 12, and replacing them with references to an output shaft side gear and clutch side gear.

The specification has been amended to recite the reference numerals that designate the clutch side pulley and output shaft side pulley illustrated in the corrected drawing sheets.

The rejection of claims 1-10 and 12 under 35 U.S.C. §102(b), and claims 11, 13 and 14 under 35 U.S.C. §103 has been obviated by revising independent claim 1 to more clearly distinguish the invention from the prior art of record. However, before the specific language of the amendment is discussed, a brief recap of the principal features and advantages of the invention will be made so that the language used in the amendment may be more fully appreciated.

As is set forth in the "Background ..." section on the last paragraph on page 3, motorized retractors used in prior art webbing retractors are disposed outside of the frame of the retractor, usually on the outer side of the side plate. Such motor retractors are typically relatively large and heavy components of the webbing retractor, comprising an electric motor, a clutch mechanism, and a gear train. Accordingly, positioning such motor retractors on the outside of a side plate of the retractor frame results in an undesirably large size, and further results in a webbing retractor with relatively poor balance characteristics. Both the large size and poor balance complicate the assembly of such prior art webbing retractors in the automotive vehicles in which they are installed.

To solve these problems, the webbing retractor of the invention includes the combination of a motorized driving mechanism and clutch for rotating the webbing spool in a take up direction which is advantageously disposed between the pair of leg plates of the frame. Such positioning of the motorized driving mechanism and clutch and associated gear train not only reduces the overall size of the webbing retractor, it further results in a retractor

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having a center of mass disposed substantially equidistantly between the leg plates of the frame, thereby resulting in a well-balanced component. Both of these features facilitate the installation of the webbing retractor in an automotive vehicle.

Claim 1 has been revised to more specifically recite the aforementioned features which result in the advantages of the invention. Specifically, amended claim 1 now recites a webbing retractor that comprises a frame having a pair of leg plates which face one another, and are connected by a back plate so as to be integral, a spool rotatably mounted between the leg plates for winding a webbing belt there around, and a driving mechanism which is disposed between the pair of leg plates

“such that substantially no portion of said driving mechanism extends beyond an outer edge of said leg plates, ...”

Claim 1 ends by reciting a clutch likewise disposed between the pair of leg plates and being mechanically interposed between the output shaft and the spool or transmitting rotation of the output shaft to the spool.

None of the references of record either discloses or suggests the webbing retractor recited in amended claim 1. All that the Nilsson '832 patent discloses is a take up mechanism for a safety belt having a pyrotechnic-powered automatic belt winding assembly comprising a motor that is connected on either side to cap 32 and casing 33 via support rod 34 (see Figure 4). The motor (*i.e.* cylinder 2 and piston 3) of the take up mechanism 1 is clearly not disposed between the pair of leg plates “such that substantially no portion of said driving mechanism extends beyond an outer edge of said leg plates, ...” To the contrary, virtually all of the motor 2, 3 of the mechanism 1 extends beyond outer edges of the cap 32 and casing 33, as is clearly shown in Figures 3 and 4. As the newly recited feature of the invention is neither disclosed nor remotely suggested by the Nilsson '832 patent, and as the recited feature results in the primary advantage of the invention (*i.e.*, the creation of a more compact webbing retractor and driving mechanism combination), amended claim 1 is clearly patentable over the '832 patent.

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As the Examiner's reliance on the Rogers '604 patent was only for its disclosure of a worm gear 48 and a clutch drive for a power belt system, amended claim 1 is likewise clearly patentable over the '604 patent, as this reference neither discloses nor suggests the recited frame, spool, or driving mechanism disposed between a pair of leg plates of a webbing frame "such that substantially no portion of said driving mechanism extends beyond an outer edge of said leg plates ..."

Nor is amended claim 1 rendered "obvious" by any tenable combination of the Nilsson '832 and Rogers '604 patents, since neither of these references remotely discloses or suggests the newly recited feature of a driving mechanism disposed between leg plates in such a way that "no portion of said driving mechanism extends beyond an outer edge of said leg plates ..." For all these reasons, amended claim 1 is clearly patentable over the Nilsson '832 and Rogers '604 patents taken either singly, or in any tenable combination.

Claims 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 and 14 are each patentable at least by reason of their ultimate dependency upon amended claim 1.

New claim 15, is patentable not only for its dependency upon new claim 1, but for its recitation that the leg plates are integrally connected to the back plate, and wherein "none of said driving mechanism extends beyond edges of said back plate when said frame is viewed along an axis of rotation of said spool." Such a claim is fully supported in the view of the invention set forth in Figure 1 (note in particular, back plate 14 and driving mechanism 60).

New claim 16 is patentable for its recitation that "a center of mass of said webbing retractor is disposed between said leg plates and within outer edges of said leg plates when said frame is viewed along an axis of rotation of said spool. While the webbing retractor disclosed in the Nilsson '832 patent may have a balance point somewhere on a line that is disposed between and parallel to the cap 32 and casing 33, the center of mass of this retractor would not be disposed within an outer edge of the cap 32 and case 33 due to the necessary high-weight of the pyrotechnic motor within the take up mechanism 1.

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New claim 17 is patentable at least by reason of its dependency upon new claim 15.

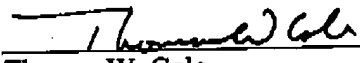
New Claim 18 is patentable for its recitation that the driving mechanism includes an electric motor, a feature completely missing in the Nilsson '832 patent.

Finally, new claim 19 is patentable at least by reason of its dependency upon amended claim 1.

Now that all the claims are believed to be patentable, the prompt issuance of a Notice of Allowance is hereby earnestly solicited.

The Commissioner is authorized to charge any overage or shortage of fees connected with filing of this Amendment to Deposit Account No. 19-2380.

Respectfully submitted,



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